

## SCIENTIFIC NOTE

**FIRST REPORT OF *CHAULIOGNATHUS*  
(COLEOPTERA: CANTHARIDAE) LARVAE IN  
EXCAVATED SHOOTS OF *PINUS SYLVESTRIS*<sup>1,2</sup>**R.D. Waltz<sup>3</sup>, T. McCay-Buis<sup>3</sup>

While performing regulatory inspections of Scots Pine (*Pinus sylvestris* L.) Christmas trees in Hancock County, Indiana, several larvae of *Chauliognathus* Hentz (Coleoptera: Cantharidae) were observed and collected from within shoots that had been previously excavated by larvae of *Eucosma* Hübner and *Rhyacionia* Hübner (Lepidoptera: Tortricidae) or *Dioryctria* Zeller (Lepidoptera: Pyralidae). The Scots Pine Christmas trees had been brought to the attention of one of us (TMB) based on concerns by the landowner regarding a September infestation by "worms" in Christmas trees that were ready to be marketed. Such a late-season infestation by "worms" is unusual because this time period is well beyond the normal range of larval activity for shoot-boring moths in that part of Indiana. In all cases, the only "worms" encountered were larvae of an unknown *Chauliognathus* sp. All Scots Pine Christmas trees, where larvae were collected, were approximately 7-10 years in age, and 6-10 feet in height.

*Chauliognathus* is a common genus of North American Cantharidae including eighteen nominal species (White 1983), two of which, *C. marginatus* F. and *C. pennsylvanicus* DeGeer, have been reported from Indiana (Blatchley 1910). Review of the *Chauliognathus* collection held at Purdue University confirmed the above two species as the only species presently known from Indiana. Species of larval *Chauliognathus* can not be readily discriminated from one another at this time (see Böving and Craighead 1931, Peterson 1951, and LeSage 1991 for general characters).

Larvae of *Chauliognathus*, widely reported as predatory on many different soft-bodied arthropods, are generally reported in duff, forest litter, and under loose bark (Peterson 1951, Arnett 1973, Carroll 1987, LeSage 1991). The collection of *Chauliognathus* larvae within excavated shoots of *P. sylvestris* has not been previously reported in the literature, although at least some members of the Malthinini have been known to inhabit pine branches (Arnett 1973). No larvae of shoot-boring moths or other insects were observed at the time larvae of *Chauliognathus* were found within pine shoots. *Chauliognathus* larvae and those of several different shoot-boring moths of pine are nearly equal in diameter, which leads us to believe that random, accidental wandering within pine shoots is unlikely. Future field observations may demonstrate that *Chauliognathus* is an opportunistic predator on species of some shoot-boring moths, possibly utilizing search strategies similar to other burrow-predating cantharids (Schultz 1994).

Voucher specimens of *Chauliognathus* larvae from Scots Pine are deposited in the Entomological Research Collection of Purdue University, West Lafayette, IN.

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## BOOKS RECEIVED AND BRIEFLY NOTED

BIOLOGICAL CONTROL. R.G. Van Driesche and T.S. Bellows, Jr. 1996. Chapman & Hall. 539 pp.

The stated intent of these authors is to provide a well-integrated, broadly-based text of appropriate length and degree of technical detail for teaching a one semester upper level course in biological control. The authors have attempted to focus on principles and concepts rather than on biological control of particular taxa or biological control by particular kinds of natural enemies. Only biological control of plant pathogens is addressed separately. The text has been written to encourage training of a new generation of biological control scientists committed to the understanding of biological control and to its safe use to solve pest problems.

THE BEETLES OF THE WORLD. VOL. 20. CICINDELIDAE 4. THE NEARCTIC REGION. Karl Werner. 1994. Sciences Nat., Vernet, France. 196 pp. 27 pl. Text in German, English, and French.

This is the second of two volumes on the Nearctic Cicindelidae. The first volume was reviewed in Entomol. News, Vol. 105, No. 1, January & February, 1994. This new volume completes the genus *Cicindela* as generally followed in the United States. As stated in the earlier review, most specimen photographs are outstanding and well illustrate obvious characters but several are off color (ex: *C. blanda*, *C. nevadica tubensis*, *C. macra fluviatilis*). Also, again, more complete descriptive information is needed, especially where identification details can not possibly be adequately shown in dorsal habitus photographs (ex: *C. lemniscata* and *C. l. rebaptista*). Notwithstanding these comments, this volume, as the former one, is a very beautiful book that one would be proud to own and display but, again, better suited for a coffee table than a taxonomist's library.

H.P.B.